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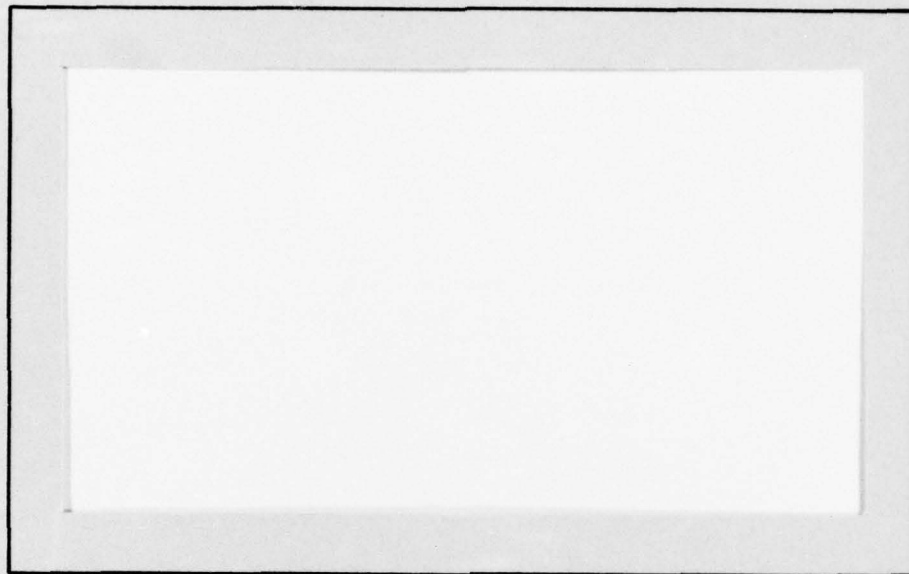
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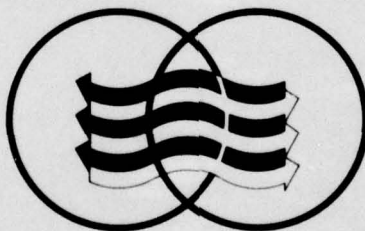
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IMPACT MODEL OF MANAGERS' INTERPERSONAL  
COMMUNICATION STYLES IN AN  
INDUSTRIAL AND A NAVY CIVILIAN ORGANIZATION

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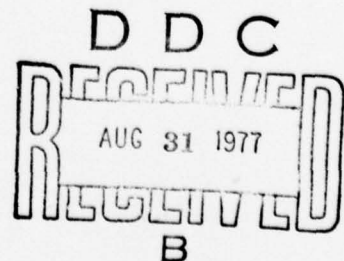
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# ABSTRACT

Internal consistency and test-retest reliabilities of the 13 measures of a communications model were calculated along with factor validations and convergent validities. Path analytic trimming of the original model was completed for two results in two organizations. Generally, reliabilities, validities, and path coefficients were similar for the two organizations, one a private industrial firm, the other, a government agency.

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IMPACT MODEL OF MANAGERS' INTERPERSONAL  
COMMUNICATION SYTLES IN AN  
INDUSTRIAL AND A NAVY CIVILIAN ORGANIZATION

While there is widespread agreement that communication gets at the core of organizational functioning and behavior, our understanding of the communication process remains quite primitive (Porter & Roberts, 1972). Our present research attempts to deal with the current gap in understanding of organizational communication and focuses specifically on the interpersonal level of managerial communication style and its impact on colleagues in a work setting.

A communication model is presented which proposes six components of a manager's interpersonal communication style. These are seen to influence his colleagues' sense of role clarity and their perceptions of the manager's credibility. These factors of role clarity and credibility in turn are seen to affect colleagues in terms of the role satisfaction, satisfaction with focal person, and effectiveness (Figure 1). The underlying development and formulation of this model are presented in previous reports (Klauss, 1977a, 1977b).

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Insert Figure 1 about here  
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The particular purposes of this report are twofold. First, we will examine the reliability and validity of the various measures which have been developed and applied in our model. Second,

we will report on some data collected from military and industry samples to see the extent to which the model holds for each group.

## METHOD

### Survey Instrument

Beginning with a review of the literature and development of a pilot questionnaire (Klauss, 1976), we developed a set of variables which characterize a manager's interpersonal communication style (the six factors were originally derived from a factor analysis of a 73 item questionnaire completed by a sample of 397 managers in a large industrial organization. The remaining variables in the model are taken from previous research reported in the literature. The role clarity measure derives from the work of Rizzo, House and Lirtzman (1970), while the three credibility measures come from the factor analytic work of Berlo, Lemert and Mertz (1969) as well as Falcione (1974). The outcome (dependent) variables are derived from research reported by Bass and Valenzi (1974).

### Procedure

The data used in the analyses reported here were collected from Navy civilian personnel and industrial personnel. Managers were initially identified by the participating organizations and

were sent a package which included a questionnaire in which respondents were asked in a set of items to describe themselves and their work situation. The questionnaire also included a set of biographical variables concerning the manager.

These managers (hereafter referred to as focal managers) were also asked to distribute ten questionnaires to colleagues in their immediate work situation (subordinates, peers, and superiors) who, in turn, responded to the same basic set of items in terms of how they viewed the focal manager and the work situation. The completed questionnaires were sent through inter-office mail to a central collection point and then forwarded in batch to the researcher for analysis. This process yielded a basic profile for each focal manager in which the manager could compare his or her own score on the various measures in the model with the average response of his colleagues to those same variables. This information was then forwarded to the participating focal manager in a format that provided feedback on how others saw him and the work situation as compared with his own perceptions.

A total of 75 focal managers and 578 colleagues participated from the Navy organization (most of whom were civilian personnel). The industrial sample included 147 focal managers and 1,231 colleagues. A general profile of the biographical characteristics for each sample is summarized in Table 1. On the whole, the Navy focal persons tended to be slightly younger than their industrial counterparts. Also, the Navy sample contained a

greater proportion of females in both the colleague and focal manager roles. Department size was also different, with the industrial personnel coming from somewhat smaller units. In terms of departmental function, both samples revealed a spread of activities and job functions.

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Insert Table 1 about here  
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## RESULTS

### Instrument Reliability

Two reliability analyses are reported here. First, the internal scale reliability of the thirteen scales utilized in our model were evaluated by calculating Cronbach's Alpha for the two samples--industrial and Navy. The results are reported in Table 2. All but one of the reliabilities were above .80.

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Insert Table 2 about here  
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As an additional test of the reliability of our scales, a test-retest reliability analysis was performed for a group of 36 graduate students, some of whom had worked full-time for a few years or more while others had worked on a part-time or short term basis. They were administered the questionnaire twice, one week apart, and asked to describe a focal manager they previously or currently were working under.



For the 36 graduate students, test-retest correlation coefficients were calculated for the 13 scales, all of which were large and statistically significant as shown in Table 2. The stability of the measures ranged from highs of .90 for the two credibility factors (trustworthy and informative) and satisfaction with focal person) to a low of .36 for informal. There was a statistically significant increase in the means for satisfaction with focal person and for informal from test to retest but mean levels did not change significantly for the other 11 variables in the model. In all we concluded that the variables were all internally consistent. All but careful listener, informal and effectiveness were stable over the time tested.

#### Scale Validities

Two analyses were performed to assess the validity of our constructed scales. First, the individual questionnaire items used to form the 13 scales for each sample were "blindly" factor analyzed by the principal components method with varimax rotation to determine the consistency of the factor structure. In performing these analyses, the items were grouped into three separate sets for consideration. Thus, the communication style variables (colleague description of focal manager communication behavior) were treated as one domain for a factor analysis. The credibility variables (how colleagues interpret the credibility of the focal person) were treated in a second factor analysis, and role clarity together with the remaining variables concerning satisfaction and effectiveness (variables which focus on

colleagues' own attitude toward the job situation and organization) were grouped together as a third set for a third independent factor analysis. The resulting factor loadings are presented in Table 3. In all cases the scale items in both samples loaded highly on the predicted factors. In no case did the factor items load on an unexpected factor.

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Insert Table 3 about here  
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For each measure obtained for each organization sample, a simple analysis of variance was performed to test the convergent validity of the scale scores for the colleague groups in describing their focal managers. For each measure, the variance between focal persons as rated by their colleagues on the average was compared with the variance "within" focal persons as seen in the ratings obtained from colleagues rating the same focal person. Eta coefficients, F-ratios, and their significance were computed (Table 4). A significant variance between groups would indicate that the colleague groups were describing characteristics which they attributed to their own focal person rather than responding randomly or to general beliefs or biases about managers in general. The greater the F-ratio and its significance and the larger the eta coefficient, which varies from 0 to 1, the greater the convergent validity as inferred from this analysis. (The rationale for this approach is provided by Bass et al., 1975).

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Insert Table 4 about here  
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An examination of the eta values indicates similar patterns for the industrial and Navy civilian personnel, although the industrial respondents yielded somewhat higher eta's across the 13 variables (median of .54 versus .47). Most of the etas for the communication variables were quite high, with open and two-way slightly less consistent. Among the intervening variables, role clarity yielded relatively low etas while the three credibility variables were quite consistent. For the consequence factors, satisfaction with focal person and effectiveness were comparatively stronger than job/role satisfaction. This pattern is consistent with an interpretation that job/role satisfaction is highly individualistic and internal to the colleague respondent (as is role clarity) while the other factors pertain more directly to the focal person in question. Thus, two colleagues rating the same focal person could be working at totally different jobs. In general, the convergent validity for these scales is seen to be quite strongly supported by the analyses.

#### Organizational Patterns

While the above reliability and validity analyses revealed quite similar results for both the Navy and industrial personnel, an additional examination of the data was also performed in order to assess the extent to which the proposed model (Figure 1) held for each organization setting.

Mean Differences. First, an analysis of mean differences between the two samples on the 13 scale scores was performed. An inspection of Table 5 reveals significant differences in 5 of the 13 scales at  $p < .01$  or better. These results indicate that the focal person in the Navy organization was perceived by colleagues as more informal and more trustworthy, as compared with industrial focal persons. Colleagues in the Navy organization also indicated greater satisfaction with the focal person, greater role clarity and a higher degree of work unit effectiveness. For the other factors, no significant differences or patterns emerged.

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Insert Table 5 about here  
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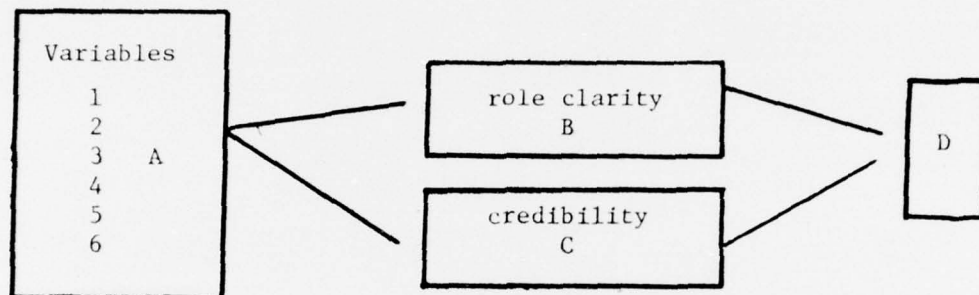
Path Differences. In addition to the above examination of mean differences on the 13 variables, a path analysis was also performed to further examine the relationships proposed in our model. In particular we were interested in exploring the extent to which simpler models might be obtained which supported our proposed causal linkages and which might yield close to the same amount of explained dependent variable variance with fewer variables.

In the present study, the application of path analysis involved the determination of the path coefficients (standardized regression coefficients) for the various hypothesized causal paths depicted in the model presented (summarized in the following diagram).

Communication  
Style  
Variables

Intervening  
Variables

Dependent  
Variables



This set of relationships was proposed for each of the three dependent variable measures and hence our analysis involved an examination of such a path diagram for each dependent variable.

The following procedure was employed for calculating the path coefficients for each diagram:

- 1) Regress D on A, B, and C. This provided initial path coefficients from B and C to D, as well as for any direct paths from A to D;
- 2) Regress B on A. This provided the path coefficients from A (variables 1-6) to B;
- 3) Regress C on A. This provided the path coefficients from A (variables 1-6) to C.



Having performed the initial analysis as outlined above for a given diagram, the resulting path coefficients were examined to see if a simplified model could be obtained. Paths with coefficients less than or equal to .15 were dropped, in instances where the path coefficient for both samples was below .15 and nonsignificant. The results of this analysis are reported below.

With regard to satisfaction with focal person, Figure 2 indicates a very similar pattern for both samples. Path coefficients for each set of colleagues were very close as were the  $R^2$  values. Hence we are inclined to conclude that all the communication style variables in the model are quite important as are focal person credibility dimensions of trustworthiness in informativeness. On the other hand, role clarity and dynamic do not appear to be critical in determining colleague satisfaction with focal person.

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Insert Figure 2 about here  
-----

The path analysis for job/role satisfaction yielded a considerably simplified model as compared with the originally proposed model. Two communication style variables emerged as central components (open and two way, and informal) with role clarity as the key intervening variable impacting job/role satisfaction. None of the credibility variables were retained for either sample using our criterion of .15 for path coefficients. The pattern for both samples, was similar in terms of retained variables but the relative strength of the path coefficients differed considerably. For the industrial sample, open and two way emerged as

quite important compared with the Navy sample, while informal was more critical for the Navy civilian colleagues as contrasted with their industrial counterparts. In both samples, however, role clarity was the central ingredient for job/role satisfaction. It should be noted, however, that the amount of explained variance for this dependent variable was considerably lower (17-18%) as compared with satisfaction with focal person (61-65%). Hence the variables in the communication model in general appeared to contribute relatively less to job/role satisfaction.

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Insert Figure 3 about here  
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Figure 4 provides the results for effectiveness. As can be seen from an inspection of the path diagram, all of the originally proposed variables were retained. However, in certain instances the path coefficient fell considerably below .15 for the industrial sample (brief and concise, careful listener leading to dynamic). Once again, open and two-way was considerably more important for the industrial sample in influencing role clarity. Trustworthy and informative appeared as the more important intervening variables (as compared with role clarity and dynamic) in impacting effectiveness. The overall explained variance for effectiveness was quite high ( $R^2 = .48 - .50$ ).

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Insert Figure 4 about here  
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### Conclusion

Communication research to date has not provided much insight into the components of particular communication behaviors of people and how these behaviors can affect other people in work settings. The model proposed and tested here attempts to address this issue by specifying a set of communication behaviors which can be related to employee satisfaction and effectiveness.

As the foregoing analyses indicated, the Communication Audit survey instrument yielded a consistent and rather strong pattern of reliability and validity. This pattern held in two types of organizational setting--military as well as industrial. Moreover, a considerable range of departmental functions were represented in both samples, thus providing a good sampling of the types of activities typically performed in most organizations. These results argue favorably for the general application of the model proposed in Figure 1 across a range of organizational contexts, and suggest that important components of interpersonal communication behavior can be measured and related to key organizational outcomes.

A word of caution is also in order, however. As indicated in our path analysis, the model captures only a portion of key organizational outcomes. This is particularly pertinent to job/role satisfaction in which only a limited amount of variance is explained. What this suggests is that job satisfaction is a complex, multifaceted phenomenon and that communication behavior has only a limited impact

at best. On the other hand, when it comes to satisfaction with focal person, it seems that communication behavior plays a considerably greater role. Effectiveness fits somewhere in between these two extremes.

Further research will help to clarify the extent to which the proposed model might be modified in the directions suggested by the path analysis reported here. In addition, attention needs to be given to potential exogenous variables which come into play in understanding the role and impact of interpersonal communication behavior in the work setting.

TABLE 1  
Summary Profile of Biographical  
and Organizational Variables

Variables	INDUSTRIAL PERSONNEL		NAVAL CIVILIAN PERSONNEL	
	Colleagues N=1206	Focal Persons N=147	Colleagues N=578	Focal Persons N=75
Average Age	38	40	38	38
Sex	89% Male 11% Female	97% Male 3% Female	76% Male 24% Female	80% Male 20% Female
Median Educational Level	15.5 years	16.0 years	16.5 years	16.7 years
Primary Function of Department or Division				
Production	13%	13%	2%	4%
Purchasing	9%	12%	1%	1%
R & D	8%	7%	5%	4%
Logistics	23%	19%	28%	31%
Engineering	15%	13%	23%	19%
Finance/Acc.	9%	9%	23%	19%
Other	23%	27%	18%	22%
Median Number of People in Dept. or Division		25		30
Median Number of People in Work Group		8		8
Median Number of People Reporting to you		3		2



TABLE 2

Reliability Analyses Of The 13

Communication Model Scores

Scale	Coefficient Alpha's*		Test-Retest Correlation**
	Industrial Personnel (N=1231)	Navy Civilians (N=578)	36 Graduate Students
<u>Communication Style</u>			
Careful transmitter	.89	.91	.85
Open and two-way	.86	.86	.80
Frank	.88	.88	.72
Careful listener	.90	.93	.47
Brief and concise	.89	.94	.58
Informal	.88	.90	.36
<u>Intervening variables</u>			
Trustworthy	.91	.92	.90
Informative	.91	.93	.90
Dynamic	.85	.88	.60
Role clarity	.94	.94	.87
<u>Consequences</u>			
Effectiveness	.73	.81	.49
Job/role satisfaction	.89	.87	.85
Satisfaction with focal person	.93	.98	.90

\*The coefficients are computed on raw-scores.

\*\*All coefficients are significant at  $p < .002$  or better.

TABLE 3

Factor Structure of the 13 Communication Model Scores  
for Industrial Personnel and Navy Civilians\*

	<u>Factor Loadings</u>	
	1231 Industrial Personnel	578 Navy Civilians
<u>Focal Manager Communication Style:</u>		
	<u>Careful transmitter</u>	
Speaks deliberately	.58	.76
Chooses words carefully	.79	.71
Organizes thoughts before speaking	.69	.66
Polished in choice of words	.77	.64
	<u>Open and two-way</u>	
Asks for others views	.70	.58
Follows up with feedback	.60	.71
Gives feedback on suggestions	.68	.71
Receptive to differing viewpoints	.65	.41
	<u>Frank</u>	
Says what he thinks	.75	.65
Seeks out information	.27	.13
Doesn't mince words	.75	.74
Expresses views self-confidently	.50	.42
Levels with others	.66	.40
	<u>Careful listener</u>	
Doesn't interrupt speaker	.69	.71
Doesn't dominate discussions	.58	.59
Keeps mind on what's being said	.35	.42
Doesn't jump to conclusions	.53	.57
Lets other finish their points	.51	.51
Doesn't fidget when others speak	.30	.48

TABLE 3 Cont'd

		<u>Factor Loadings</u>	
		1231 Industrial Personnel	578 Navy Civilians
<u>Focal Manager Communication Style:</u>			
<u>Item</u>		<u>Brief and concise</u>	
Comments are brief	.62		.49
Isn't verbose	.79		.74
Speaks concisely	.77		.69
Sticks to the point	.61		.75
		<u>Informal</u>	
Informal, relaxed communicator	.71		.82
Natural self in relating to others	.66		.64
<u>Focal Manager Credibility:</u>			
		<u>Trustworthy</u>	
Congenial	.81		.78
Agreeable	.79		.77
Friendly	.82		.78
Pleasant	.81		.80
Fair	.65		.58
Gentle	.30		.33
Just	.62		.58
Kind	.38		.35
		<u>Informative</u>	
Well trained	.86		.81
Well qualified	.86		.82
Well informed	.71		.74
Appropriate prior experience	.83		.80
Authoritative	.17		.16
Skilled	.82		.84

TABLE 3 Cont'd

	<u>Factor Loadings</u>	
	1231 Industrial Personnel	578 Navy Civilians
<u>Focal Manager Credibility:</u>	<u>Dynamic</u>	
Aggressive in work	.78	.77
Not hesitant	.61	.54
Energetic	.66	.67
Not timid	.64	.59
Forceful	.74	.71
Active	.60	.61
<u>Colleague Role Clarity and Consequences:</u>	<u>Role clarity</u>	
Know job responsibilities	.80	.77
Certain about authority	.76	.71
Clear idea of responsibilities	.63	.61
Know what's expected in job	.84	.84
Allocate time properly	.72	.65
Have clear, planned objectives	.74	.67
	<u>Effectiveness</u>	
Overall work unit effectiveness	.76	.76
Effectiveness compared to other units	.83	.81
Extent improvements in effectiveness needed	.28	.22
	<u>Job/role satisfaction</u>	
Overall job satisfaction	.74	.73
Satisfaction in chances for promotion	.79	.78
Satisfaction that own interests/abilities effectively used	.79	.79
Satisfaction with own progress	.82	.75
	<u>Satisfaction with focal person</u>	
Extent focal person meets colleagues job needs	.85	.83
Extent focal person meets organizations needs	.80	.82
Overall satisfaction with focal person	.85	.82
Satisfaction with focal person's interpersonal approach	.78	.79

\*Principal components factor analysis with varimax rotation.

TABLE 4  
Convergent Validity Analysis for Industrial  
and Navy Personnel

Variable	F Ratio		Eta Coefficient		Median Eta
	Industrial <sup>a</sup>	Navy <sup>b</sup>	Industrial	Navy	
Communication style					.51
Careful transmitter	2.11***	1.71*	.49	.44	
Open and two-way	1.70**	1.51*	.44	.42	
Frank	2.71***	2.27***	.55	.50	
Careful listener	3.70***	4.57***	.58	.65	
Brief and concise	4.63***	3.07***	.60	.55	
Informal	2.67***	2.13***	.52	.47	
Intervening variables					.56
Trustworthy	3.32***	2.37**	.56	.49	
Informative	3.29***	3.48***	.55	.57	
Dynamic	3.49***	3.93***	.59	.59	
Role clarity	1.31*	1.05	.37	.35	
Consequences					.46
Effectiveness	2.13***	1.87*	.47	.45	
Job/role satisfaction	1.24	.78	.36	.30	
Satisfaction with focal person	3.00***	2.15**	.54	.47	
Median eta for each sample			.54	.47	

\*  $p < .05$     \*\*  $p < .01$     \*\*\*  $p < .001$

<sup>a</sup>140 groups; n = 1064 - 1191    <sup>b</sup>41 groups; n = 292 - 323

Note: variations in n sizes are due to missing data.



TABLE 5  
Mean Differences on Thirteen Communication Variables of  
Industrial and Navy Personnel

Variable	Mean		t Value	SD	
	Industrial (N= 1086-1223)	Navy (N= 504-573)		Industrial	Navy
Communication style					
Careful transmitter	5.94	6.03	1.08	1.46	1.43
Open and two-way	5.61	5.66	.56	1.53	1.54
Frank	6.26	6.27	.05	1.39	1.36
Careful listener	6.87	6.91	.62	1.24	1.32
Brief and concise	7.10	7.04	-.79	1.41	1.50
Informal	6.21	6.54	3.60***	1.84	1.73
Intervening variables					
Trustworthy	6.76	7.01	3.71***	1.32	1.30
Informative	6.99	7.05	.86	1.37	1.52
Dynamic	6.86	6.82	-.62	1.32	1.46
Role clarity	6.87	7.08	3.00***	1.40	1.25
Consequences					
Effectiveness	4.58	4.76	2.73**	1.32	1.34
Job/role satisfaction	5.46	5.27	-1.98*	1.79	1.87
Satisfaction with focal person	5.73	6.02	3.63***	1.56	1.51

\*  $p < .05$     \*\*  $p < .01$     \*\*\*  $p < .001$

FIGURE 1  
Model Representing Impact of Focal Manager's Interpersonal  
Communication Style on Colleagues

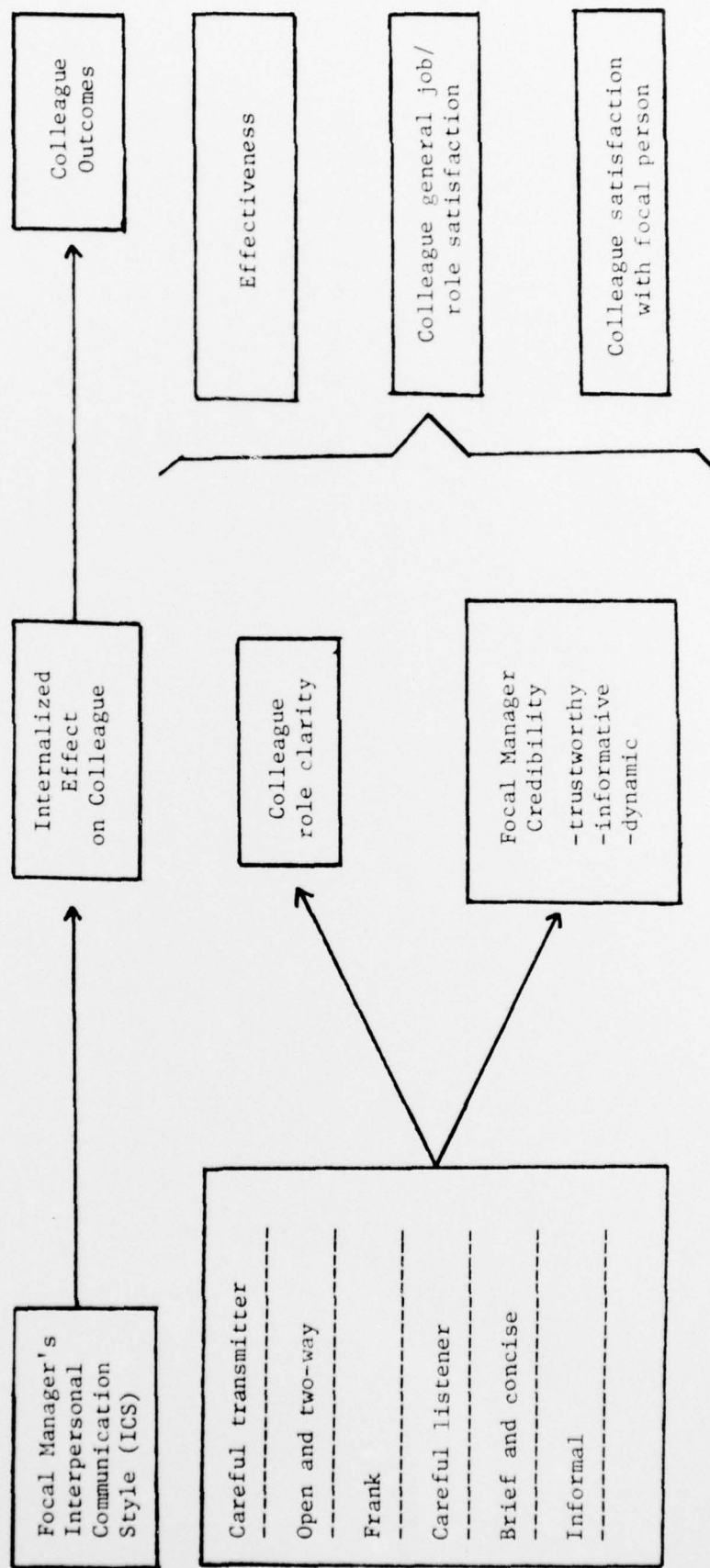


FIGURE 2

Path Analysis of Communication Styles, Credibility

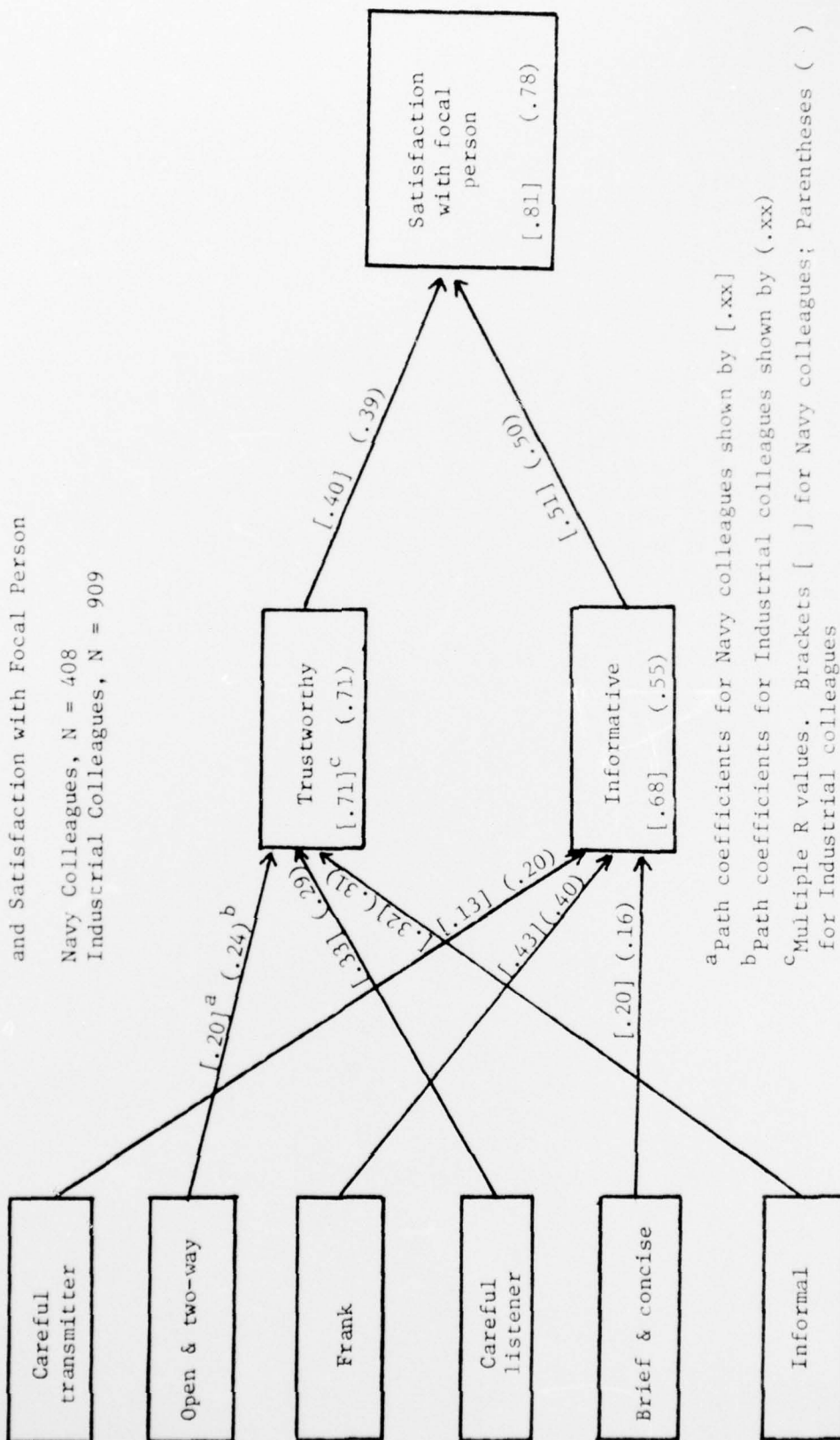
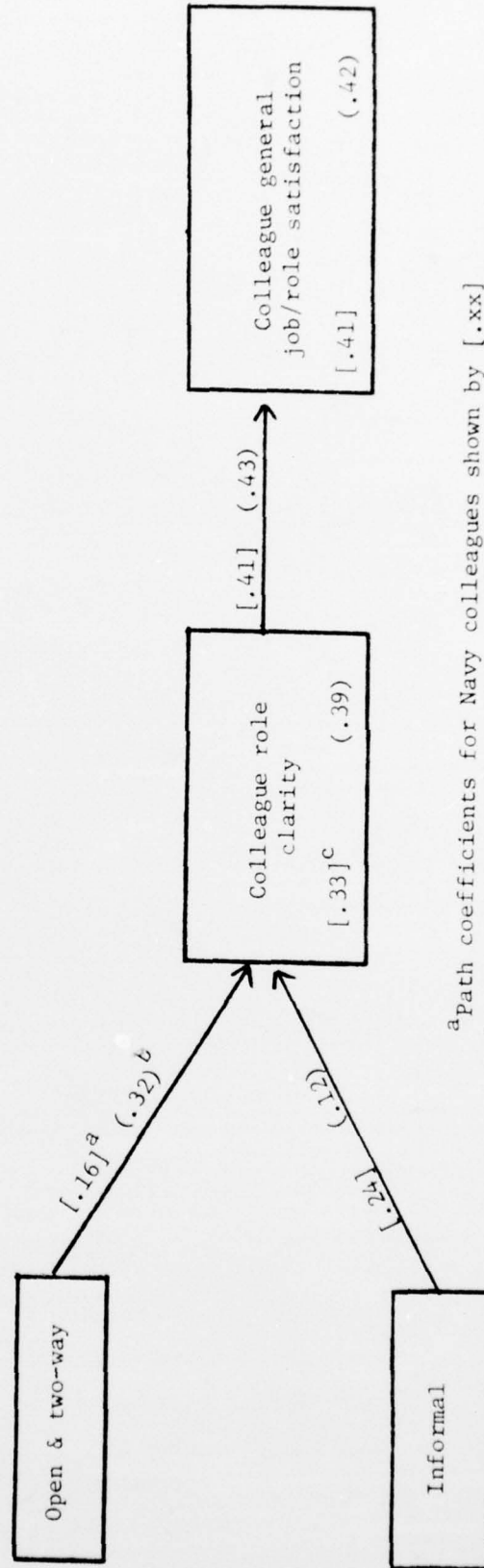


FIGURE 3

Path Analysis of Communication Styles, Credibility  
And Role Clarity Leading to Colleague Role Satisfaction

Navy Colleagues, N = 408  
Industrial Colleagues, N = 909



<sup>a</sup>Path coefficients for Navy colleagues shown by [.xx]

<sup>b</sup>Path coefficients for Industrial colleagues shown by (.xx)

<sup>c</sup>Multiple R values. Brackets [ ] for Navy colleagues; Parentheses ( ) for Industrial colleagues

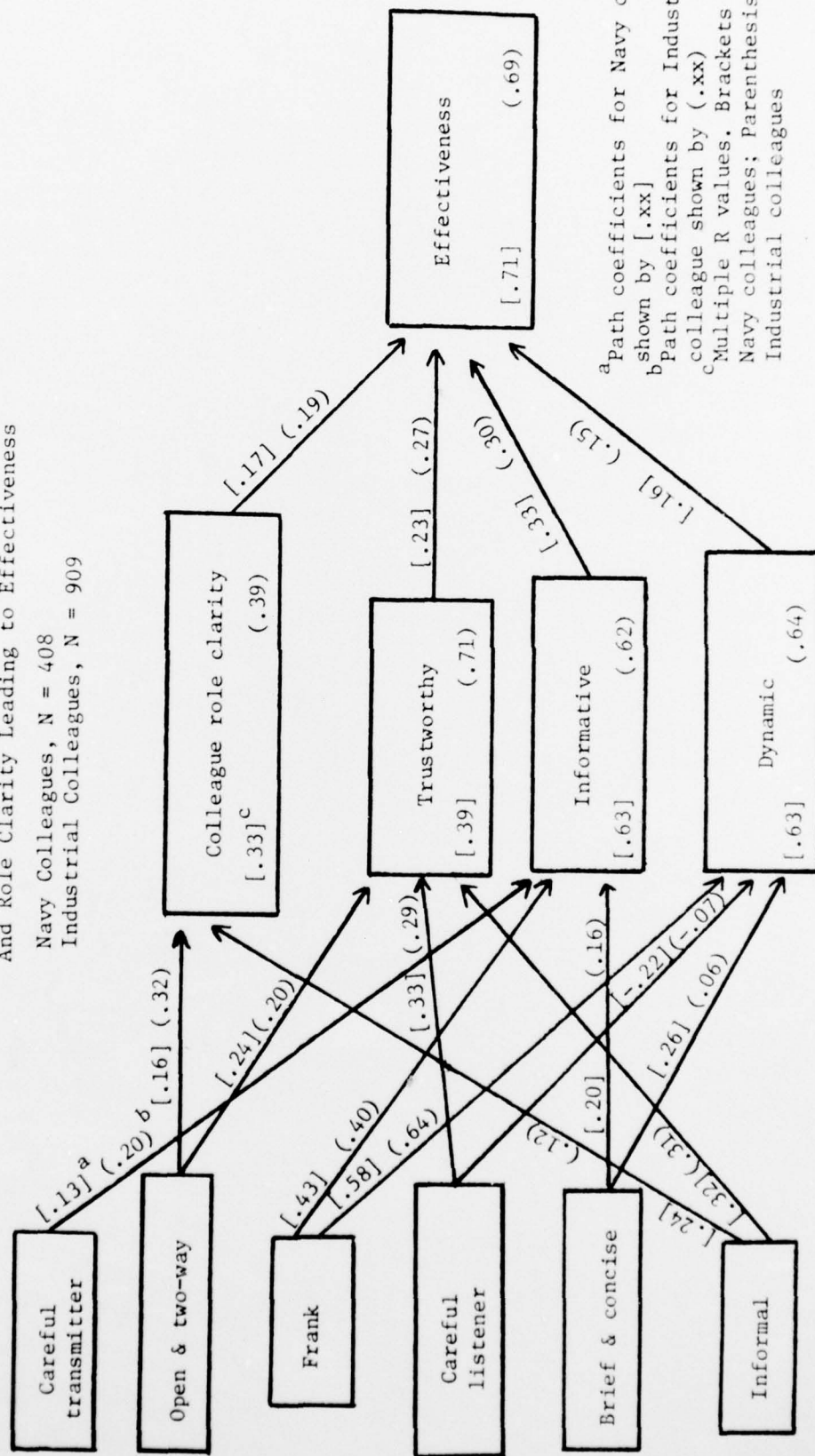
FIGURE 4

Path Analysis of Communication Styles, Credibility

And Role Clarity Leading to Effectiveness

Navy Colleagues, N = 408

Industrial Colleagues, N = 909





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